

FIG. 1

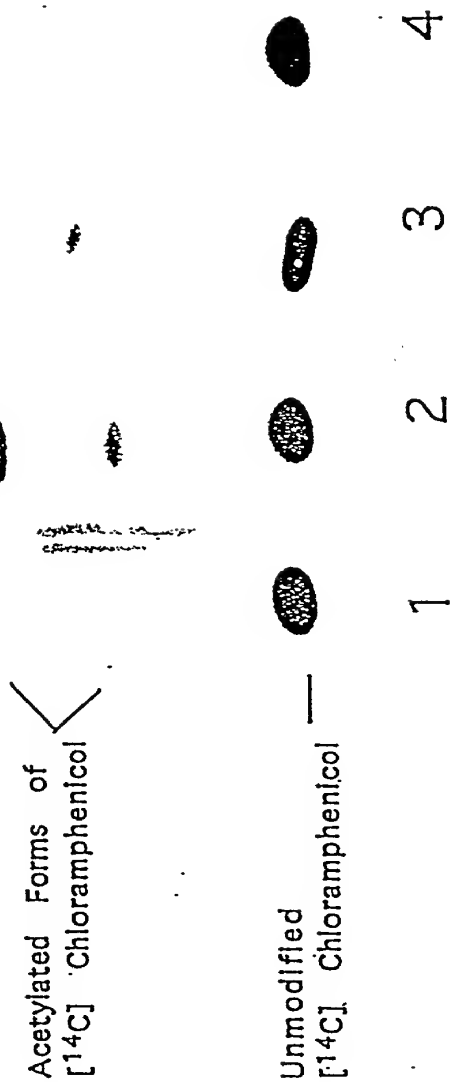


FIG. 2

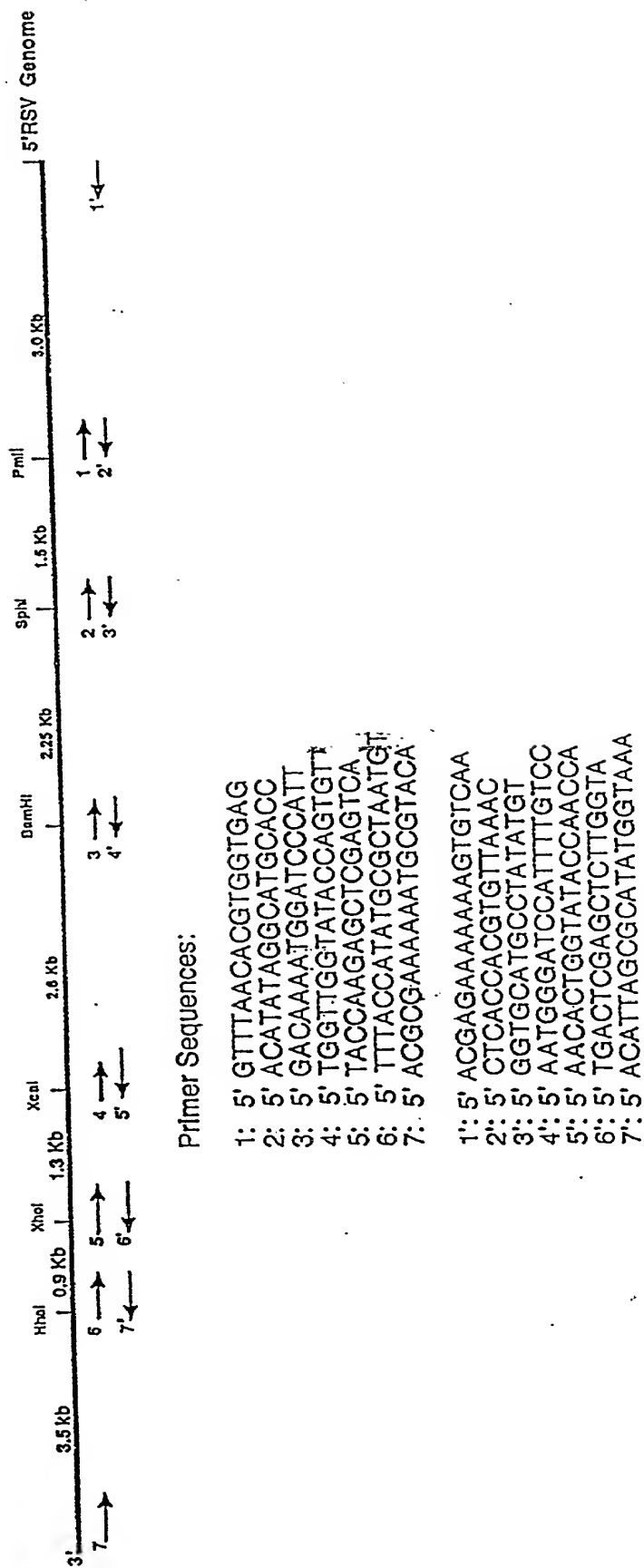
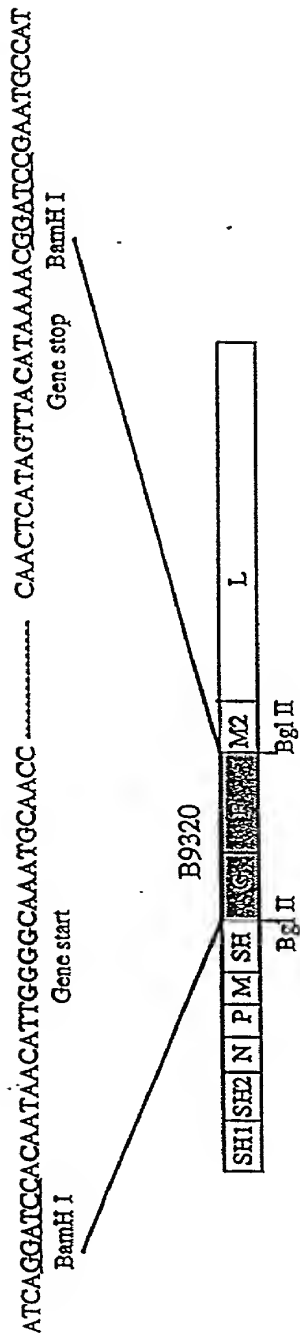
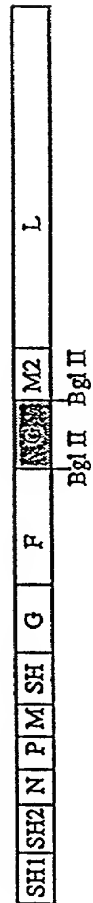


FIG. 3

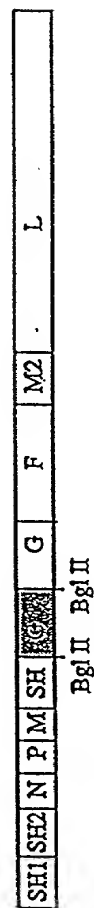
A. RSVB-GF



B. RSVB9320G-F/M2



C. RSVB9320G-SH/G



FIGS. 4A-C

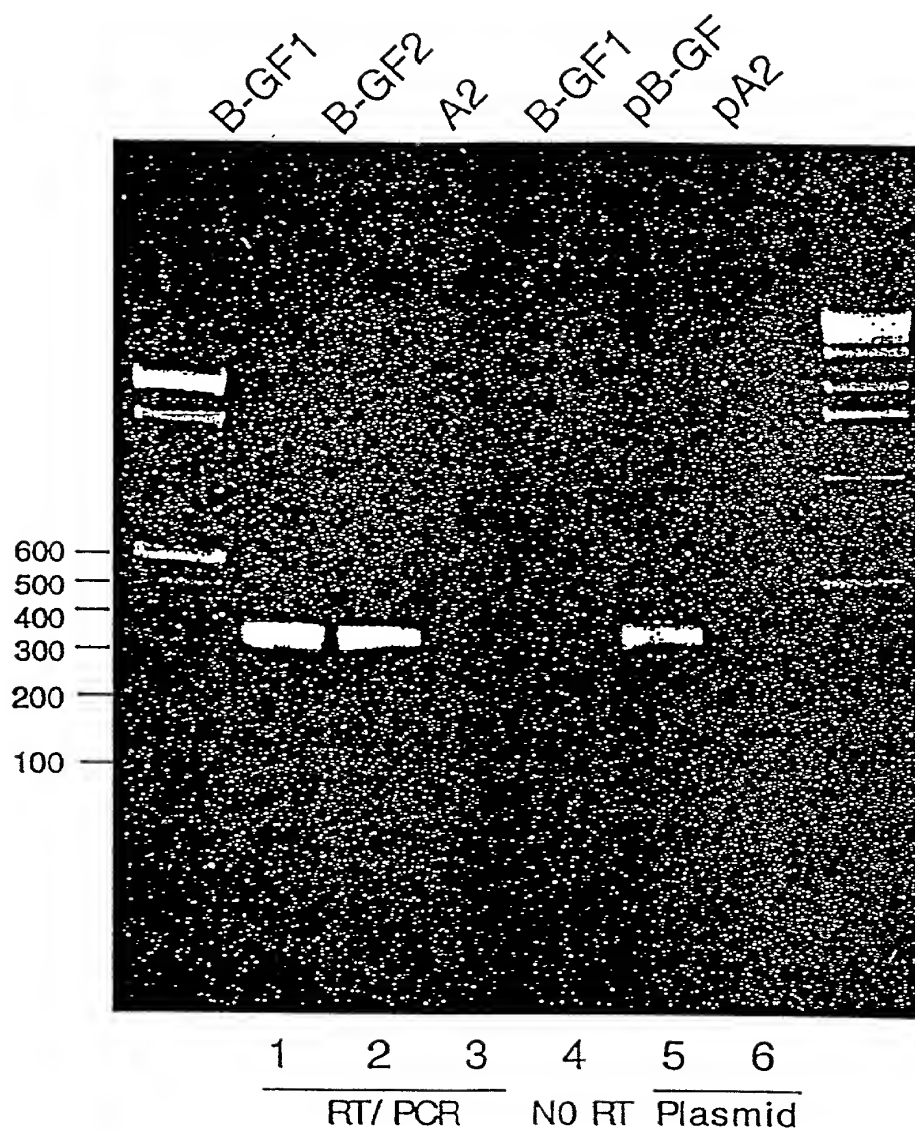
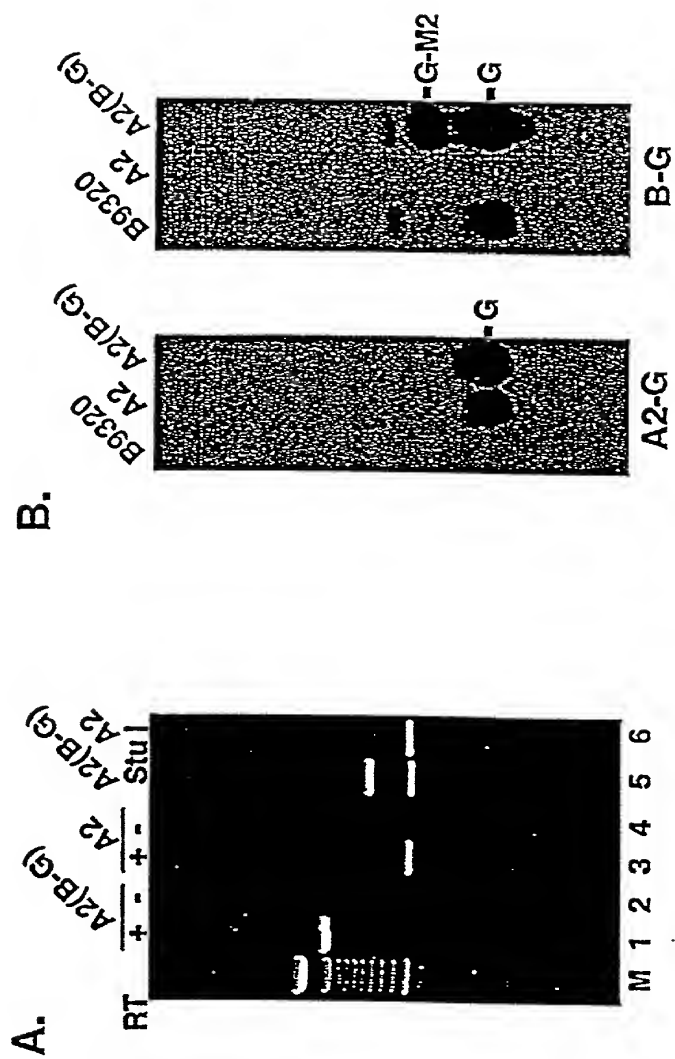


FIG. 5



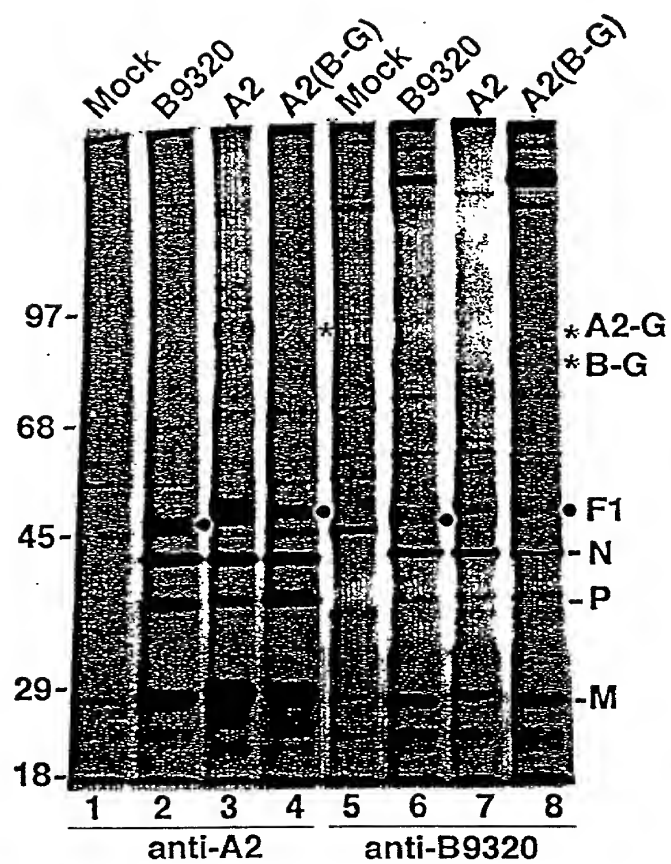


FIG. 7

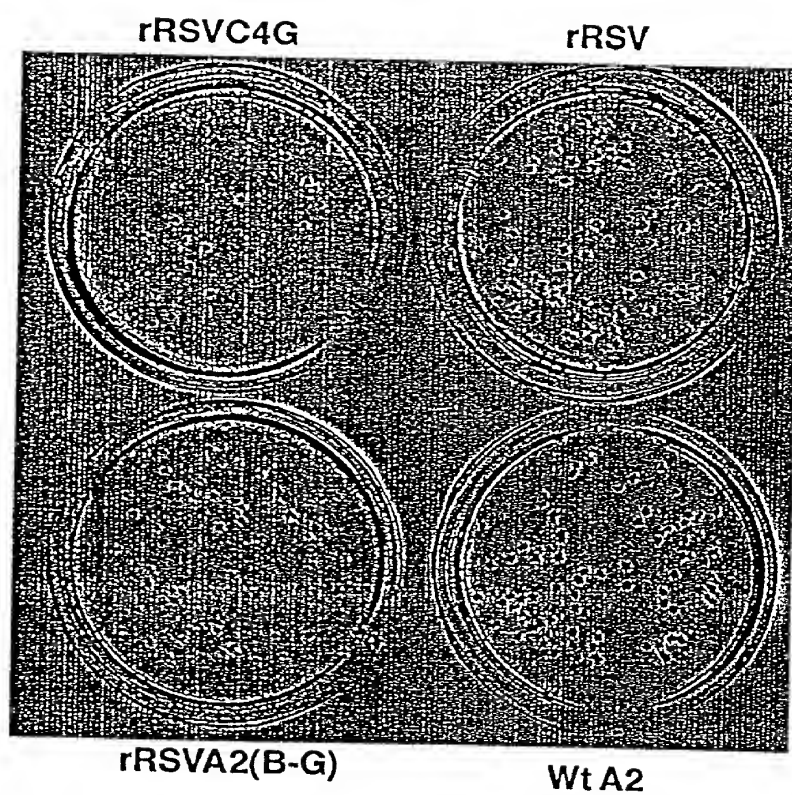


FIG. 8

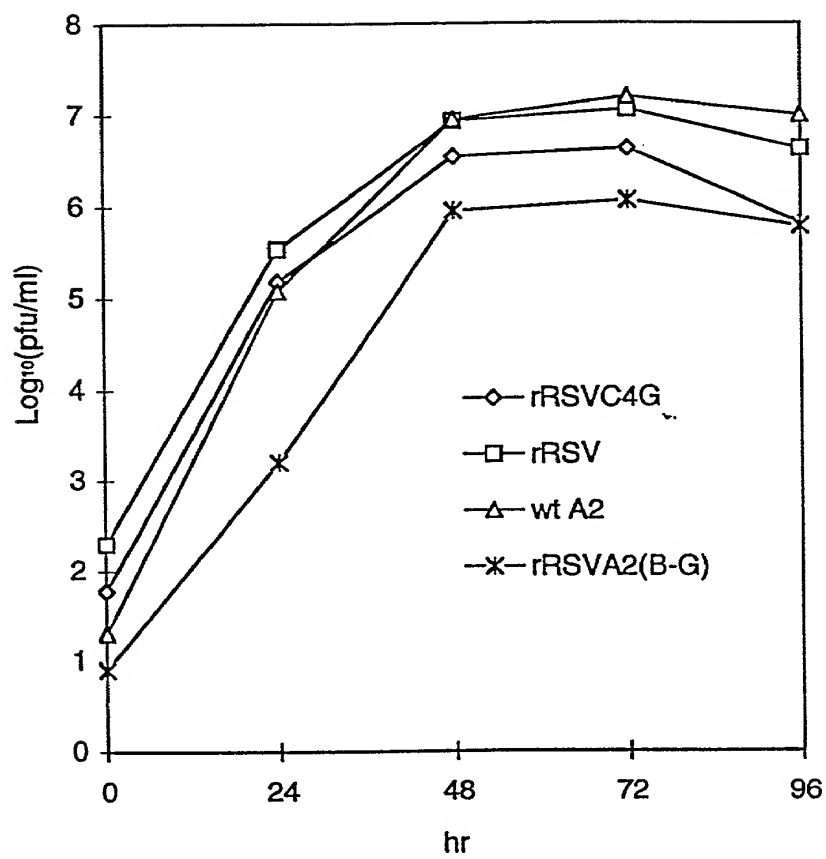


FIG. 9

MDPIINGNSANVYLT DSYLKGVI~~SP~~SECNA ~~LS~~SYIFNGPYL~~K~~NDY ~~TN~~LSRQNP~~L~~IEHMN LK~~K~~LNITQSLISKYH 75
 KGEIKLE~~E~~PTFYQSL LMTYKSM~~T~~SE~~Q~~IAT TNL~~L~~KIIRRAIEIS DVKVYA~~I~~L~~N~~KLG~~L~~KE KDKIKSNNGQ~~E~~DE~~D~~NS 150
 VIT~~T~~IIK~~D~~ILLSAVK DNQSHLKADKNHSTK QKDTIK~~T~~TL~~L~~KKLMC SMQHP~~P~~SWL~~I~~HMFNL YTKLNNIL~~T~~QYRSNE 225
 VKNHGFTLIDNQTLS GFQFTLNQYGCIVYH KELKRITVT~~T~~YNQFL TWKDISL~~S~~RLNVCLL TWISNCLNTINKSLG 300
 LRCGFNNVILTQ~~L~~FL YGDCIL~~K~~LFHNEG~~F~~Y I~~T~~KEVEGFIMSL~~T~~LN I~~T~~EEDQFR~~K~~R~~F~~YNSM LNNITDAANKAQKNL 375
 LSRVCHTL~~L~~DKTVSD NIINGRWIILL~~S~~KFL KLKLAGDN~~N~~LNLS ELYFL~~R~~IF~~F~~GHPMVD ~~EH~~QAMDAVKINCNET 450
 KFYLLSSLSMLRGAF TYRIIKGFVN~~N~~NRW PTLRNAIVL~~P~~LRWLT YKLN~~T~~YPSL~~L~~ELTE ~~RD~~LIVLSGL~~R~~FYREF 525
 RLPKKVDLEMIINDK AISPPKNL~~I~~WTSFPR NYMPSH~~I~~QNYIEHEK LKFS~~E~~DKSR~~R~~VLEY YL~~R~~DNKFNECDLYNC 600
 VV~~N~~QSYLNNPNHVVS LTGK~~E~~REL~~S~~VGRMFA MQPGMFRQVQILAEK MIAENIL~~Q~~FFPE~~S~~LT RYGDLELQKILELKA 675
 GISNKSRYNDNANN YISKCSII~~T~~DL~~S~~KFN QAFRYETSCICSDVL DELHGVQSL~~F~~SWLHL TIPHVTIIC~~T~~YRHAP 750
 PYIGDHIVDLNNVDE QSGLYRYHMG~~G~~IEGW CQKLW~~T~~IEAISLLDL ISLKGKFSIT~~A~~LING DNQSIDISKPIRLME 825
 GQTHAQADYLLALNS LKLLYKEYAGI~~G~~HKL KGTEYI~~S~~RD~~M~~QFMS KTIQHNGVYYPASIK KVLRVGPWINTILDD 900
 FKVSLESIGSLTQEL EYRGESLLCSL~~I~~FRN VMLYNQIALQ~~L~~KNHA LCNNKLYLDILKVLK HLK~~T~~FFNL~~D~~NIDTAL 975
 TLYMNL~~P~~MLFGGDP NLLYRSFYRRTPDFL TEAIVHSVFILSY~~T~~ NHD~~L~~KDKLQDLSDDR LNKFL~~T~~CII~~T~~FDKNP 1050
 NAEFVTLMRDPOALG SERQAKITSEINRLA VTEVLSTAPNKIFSK SAQHY~~T~~TTTEIDLANDI MNIEPTYPHGLRVV 1125
 YESLPFYKAEKIVNL ISG~~T~~KSITINILEKTS AIDLTDIDRAT~~E~~MMR KNITLLIRILPLDCN ~~RD~~KREILSMENLSIT 1200
 ELSKYVRE~~R~~SWLSN IVG~~T~~SPSIMY~~T~~MDI KYT~~T~~STISSGLIIEK YN~~V~~NSLTRGERGPTK PWVGSSTQ~~E~~K~~K~~TMPV 1275
 YNRQVLTKQRDQID LLAKLDWVYASIDNK DEFMEELSIGTLGLT YEKAKLFPQYLSVN YLHRLTVSSRPCEFP 1350
 ASIPAYRT~~T~~NNHFDT SPINRILTEKYG~~E~~D IDIVFQNCISFGLSL MSVVEQFTNVCPNRI ILIPK~~L~~NEIHLMKPP 1425
 IFTGDVDIHKLKQVI QKQHMFLPDKISLTQ YVELFSLN~~K~~TLKSGS HVNSNLILAHKISDY FHNTYILSTNLAGHW 1500
 ILIIQLMKDSKGIFE KDWIGEYITDHMFN LKVFENAYKTYLLCF HKGYGKAKLECDMNT SDLLCVLELIDSSYW 1575
 KSMKVFLEQKVYKY ILSQDASLHRVKGCH SFKLWFLKRLNVAEF TVCPWV~~V~~NIDYHPTH MKAILTYIDLV~~R~~MGL 1650
 TNIDRIHIK~~N~~KKH~~K~~FN DEFYTSNLFY~~T~~NYNF SDNTHLLTKHIRIAN SELENNY~~N~~KLYHPTP ETLENILANP~~I~~KSND 1725
 KKTILNDYCI~~G~~KNVDS TMLPLLSNKKLIKSS AMIRTNYSKQDLYNL FPMVVIDRIIDHSGN TAKSNQLYTTTSHQI 1800
 SLVHNSTSLYCMLPW HHINRENFVFSSTGC KISIEYILKDLKIKD PN~~C~~IAFIGEGAGNLL LRTVVELHPDIRYIY 1875
 RSLKDCNDHSLPIEF LRLYNGHINIDYGEN LTIPATDATNNIHWS YLHIKFAEPISL~~F~~VFC DAELS~~V~~T~~V~~NWSKII~~I~~ 1950
 EWSKHVRKCKYCSSV NKCMLIVKYHAQDDI DFKLDNITILKTYVC LGSKLKSGSEVYL~~V~~LT IGPANIFPVFN~~V~~VQN 2025
 AKLILSR~~T~~KNFIMPK KAD~~K~~ESIDANIKSLI PFLCYPITKKGINTA LSKLKS~~V~~VSGDILSY SIAGRNEVFSNKLIN 2100
 HKHNNILKWFNHVLN FRSTELNVNHYLMVE STYPYLS~~E~~L~~L~~NSLIT~~T~~ NELK~~L~~KLIKITGSLLY NFHNE 2165

Charged Clusters (Amino Acids that are underlined were changed to alanines)
 Mutations in cpts-248/404
 Mutation in cpts530

FIG. 10

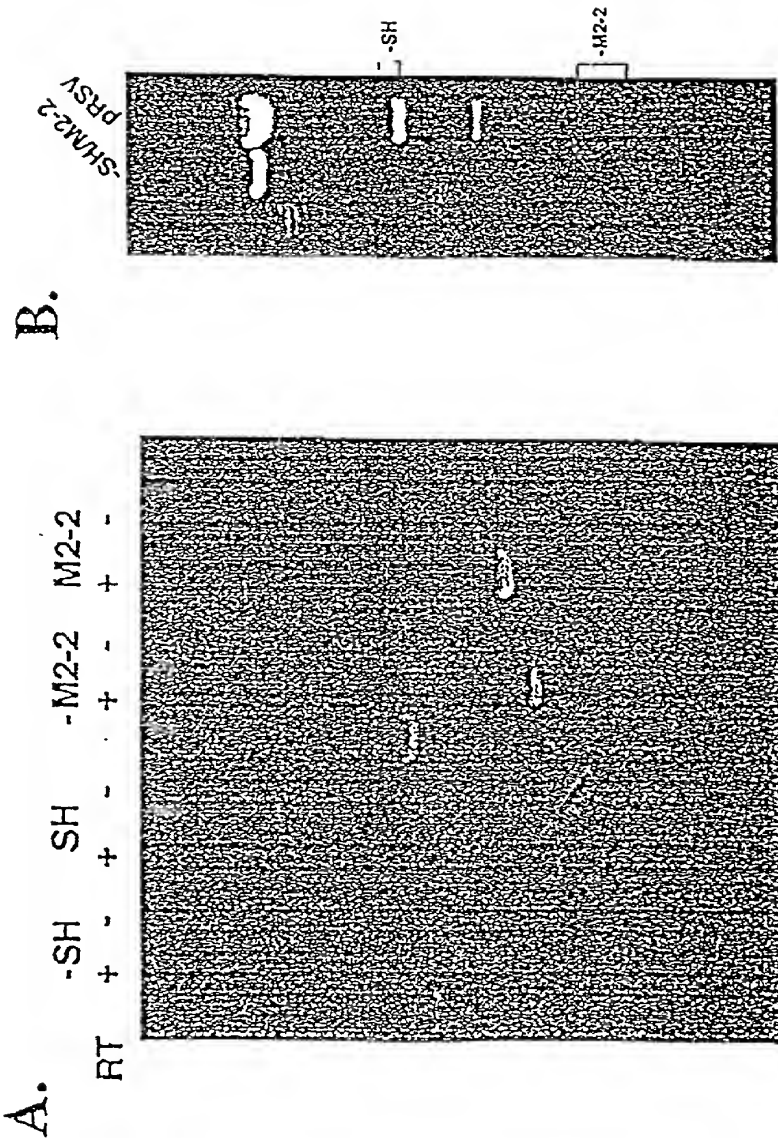
MDPTINGNSANVYLT DSYLKGVLISFSECNA LGSYIFNGPYLKNDY TNLISRONPLIEHNM LKKNITQSLISKYH 75
 KGEIKLEETPYFQSL LMTYKSMTSSEQIAT TNLKKIIRRAIEIS DVKVYAILNKLGLKE KDKIKSNNGQDEDNS 150
 VITTIKDDILSAVK DNQSHLKADKNHSTK QKDTIKTTLLKKLMC SMQHPPSWLIIHWFNL YTKLNNILTQYRSNE 225
 VKNHEFTLIDNQTLG GFQFIILNQYGCIVYH KELKRITVTYTNQFL TWKDISLSRLNVCLI TWISNCLNTLNKSLG 300
 LRCGFNNVILTQLFL YGDCILKLFHNEGFI IIKEVEGFIMSLIIN IITEEDQFRKRFVNSM LNNITDAANKAQKNL 375
 LSRVCHTLDDKTVD NIJNGRWIILLSKFL KLKLAGDNNNLNL S ELYFLPRIFGHFPMVD ERQAMDAVKINCNET 450
 KFYLLSSLSMLRGAF IYRIIKGFVNNYNRW PTLRNAIVLPLRWLT YYKLNTPSLLLELTE RDLIVLSGLFYREF 525
 RLPKKVDLEMIINDK AISPKNLIWTSFPR NYMPSHIQNYIEHEK LKFSESDKSRRLVLEY YLRDNKFNECDLYNC 600
 VUNQSYIANPNHVVS LTGKERELSVGRMFA MQPGMERQVQILAEK MIAENILQFFPESLT RYGDLELQKILELKA 675
 GISNKSRYNDNYNN YISKCSIITDLSKEN QAFRYETSCICSDVL DELHGVQSLFSWLHL TIPHVTTICTYRHAP 750
 PYIGDHIVDLNNVDE QSLRYRHMGGIEGW CQKLWTEIAISLLDL ISLKGKFSITALING DNQSIDISKPIRLME 825
 GQTHAQADYLLALNS LKLLYKEYAGIGIKL KGTETVISRDMQFMS KTIQHNGVYYPASIK KVLRVGPWINTILDD 900
 FKVSLESIGSLTQEL EYRGESLLQSLIFRN VWLYNQIALQKLNHA LCNNKLYLDILKVLK HLKTFENLDNIDTAL 975
 TLYMNLPMFLGGGDP NLLYRSFYRRTPDFL TEAIVHSVFILSYT NHDLKDKLQDLSDDR LNKFLTCTITFDKNP 1050
 NAEFVTLMRDPQALG SERQAKITSEINRLA VTEVLSTAPNKIFSK SAQHYTTTEIDLNDI MQNTEPTYPHGLRV 1125
 YESLPFYKAEKIVNL ISGTSITNILEKTS AIDLTDDIDRATEMMR KNITLLIRILPLDQCN RDKREILSMENLSIT 1200
 ELSKYVRERSWSLSN IVGVTSPSIMYTMDI KYTTSTISSGIIIEK YNVNSLTRGERGPTK PWVGSSTQEKKTMPV 1275
 YNRQVLTCKQORDQID LLAQLDWVYASIDNK DEFMEELSIGTLGLT YEKAKKLFPQYLSVN YLHRLTVSSRPQEF 1350
 ASIPAYRTFTNYHFDI SPINRILTEKYGDED IDIVFQNCISFGLSL MSVVEQFTNVCPNRI ILIPKLNETHLMKPP 1425
 IFTGDVDIHLKQVI QKQEMFLPKISLTQ YVEFLSNKTKLKS GS HVNSNLILAHKISDY FHNTYILSTNLACHW 1500
 ILIIQLMKDSKGIFE KDWGEGYITDHFMIN LKVFENAYKTYLLCF HKGYGKAKLECDMNT SDLLCVLELIDSSYW 1575
 KSMKVFLQKQVIKY ILSQDASLHRVKGQH SFKLWELKRLNVAEF TVCPWVUNIDYHPTH MKAILTYIDLVRMGL 1650
 INIDRIHIKKNHKN DEFYTSNLFYINYNF SDNTHLLTKHIRIAN SELENNYNKLYHPTP ETLENILANPIKSN 1725
 KKTINDYICIGKNVDS IMLPLLSNKKLIKSS AMIRTNYSKQDLYNL FPMVVIDRIIDHSGN TAKSNQLYTTTSHQI 1800
 SLVHNSTSLYCMPLPW HHINRFNFVFSSTGC KISIEYILKDLKIKD PNCFIAGIEGAGNLL LRTVVELHPDIRIY 1875
 RSLKDCNDHSLPIEF LRLYNGHINIDYGEN LTIPATDATTNIHWS YLHIKFAEPISLFVC DAELSVTVNWSKIII 1950
 EWSKHVRKCKYQCSSV NKCMLIVKYHAQDDI DFKLDNITILKTYVC LGSKLKGSEVYLVLT IGPANIFPVFNVVQN 2025
 AKLILSRKTNFIMPK KADKESIDANIKSLI PFLCYPITKKGINTA LSKLKSUVSGDILSY SIAGRNEVFSNKLIN 2100
 HKHMMNLKWFNEHVLN FRSTELNYNHLYMVE STYPYLSSELNLSLT NELKKLIKITGSLLY NFHNE 2165

C Cysteine residues

C Cysteine residues that were changed to valine or aspartic acid

C Cysteine residue deleted

FIG. 11



FIGS. 12A-B